

**ABSTRACT OF THE INVENTION**

A spool comprises: a hub sandwiched between two flanges. At least one of the flanges includes at least one smoothly curving arcuate fiber groove on a side facing the hub. The fiber groove extends substantially to the outer edge of said flange. The groove is situated at a shallow angle  $\theta$  relative to the tangent line to the periphery of the flange, the angle  $\theta$  being no more than 15 degrees.